**South Dakota Agricultural Education (AFNR)**

**Academic Integration Activities**

**ACTIVITY #13**

*Agribusiness Entrepreneurship students will be able to comprehend equivalent forms of algebraic expressions when studying supply and demand curve formulas.*

**1. Ag Standard**

Agribusiness Entrepreneurship, E 1.2: Develop management skills necessary to accomplish general business activities.

* Illustrate basic economic concepts to a given set of financial situations including opportunity cost, supply and demand and diminishing returns.

**2. Academic Standard**

9-12.A.1.1: Students are able to write equivalent forms of algebraic expressions using properties of the set of real numbers (Comprehension).

* Evaluate algebraic expressions.
* Use conventional order of operations.

**3. Background Information**

When **evaluating simple algebraic expressions**, all unknows (typically expressed as a letter) are replaced with real numbers. For example, 3x + 2x when x = 5. Plug in 5 for x to get 3(5) + 2 (5) = 15 + 10 = 25

The **order of opperations** for algebraic equations follow this sequence: Parenethesis – Exponents – Multiply – Divide – Add – Subtract.

**4. Example in Context**

Assume a student is given the equation for a demand line to be p = -1x +25 where p represents price per item sold and x is the number of items sold at that price. What would the ideal price need to be for a company to make and sell 20 items.

Plug 20 in for x and solve for p

p = -1(20) + 25

p = -20 + 25

p = $5

**5. Guided Practice Exercise**

Assume a student is given the equation for a supply curve to be p = 2x +5 where p represents price per item sold and x is the number of items sold at that price. What would be the price needed for a company to make and sell just one item.

Plug 1 in for x and solve for p

p = 2(1) + 5

p = 2 + 5

p = $7

**6. Independent Practice Exercises**

Assume a student is analyzing a demand curve for a business selling hay bales. They would like to know the quantity (x), of hay bales that could be sold at a price (p) of $25 per bale. The equation for the graph is p =- 2(x) + 35.

*Answer: 5 bales (p = -2(x) + 35, 25 = -2x +35, 25 – 35 = -2x = 35 – 35, -10 = -2x, -10 = -2x, x = 5)*

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Assume a student is given the equation for a supply curve for a sweet corn stand as p = .025x + 1. They would like to know the ideal price if they wanted to sell 144 dozen sweet corn in one day at a farmers market. What would that price be per dozen?

*Answer: $4.60 (p = .025(144) + 1)*

**7. Notes**

None